



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,268	10/09/2003	Michael Deimling	32860-000619/US	5987
30596	7590	05/20/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			VO, HIEN XUAN	
P.O.BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
			2863	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/681,268

Applicant(s)

DEIMLING, MICHAEL

Examiner

Hien X. Vo

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-47 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/09/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 10/09/03. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84 because they do not include the following details reference label mentioned in the description. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 rejected under 35 U.S.C. 102(b) as being anticipated by Debbins et al. (U.S Patent No. 6,603,992).

With respect to claim 1, Debbins et al. disclose a method and system for synchronizing magnetic resonance image acquisition to the arrival of a signal-enhancing contrast agent including filtering the raw magnetic resonance data (see e.g. col. 5, lines 30-32), Fourier transforming the filtered data (see e.g. col. 5, lines 45-46), forming a second magnetic resonance signal from an absolute value of the Fourier transformed data results (see e.g. Abstract), Fourier transforming the raw magnetic resonance data (see e.g. col. 9, lines 40-45), forming a second magnetic resonance signal from an absolute value of the Fourier transformed raw magnetic resonance data (see e.g. col. 8, lines 26-42), and forming a post-processed magnetic resonance signal from a weighted combination of the first and second magnetic resonance signals (see e.g. col. 8, lines 42-46).

Claims 2-47 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims in combination.

For claims 2-6, 8, none of the prior art teach singularly or in combination the raw magnetic resonance data are filtered using a second filter, separate from a first filter used in first filtering the raw magnetic resonance data before the Fourier transformation, used in forming the second magnetic resonance signal, the raw magnetic resonance data are filtered after demodulation, the raw magnetic resonance data are obtained using magnetic resonance spectroscopy unit, the raw magnetic resonance data are obtained using a magnetic resonance tomography unit, the filtering is done using a low pass filter and a high pass filter.

For claims 10-15, none of the prior art teach singularly or in combination the raw magnetic resonance data are data for at least one of a one-dimensional and multidimensional space to be examined, the Fourier transformation maintains the dimensionality of the raw magnetic resonance data, the weighted combination involves addition of the absolute values of the magnetic resonance signals, the two magnetic resonance signals are subjected to weighted combination such that the contribution one of the magnetic resonance signals to the weighted combination is formed by multiplying this magnetic resonance signal by a weighting factor, with the weighting factor depending on the other of the magnetic resonance signals such that it is relatively greater when the absolute value of this magnetic resonance signal is large and relatively less when the absolute value is small, for the weighted combination, the

Art Unit: 2863

contribution of one of magnetic resonance signals has a nonlinear dependency on the absolute value of the other magnetic resonance signal, the weighted combination of the two magnetic resonance signals by two parameters and K results in the post-processed magnetic resonance signal in the following manner:

$$C = A + \lambda (B / A_{\max})^K B, \text{ where}$$

A is one of the magnetic resonance signals,

B is the other of the magnetic resonance signals,

A_{\max} is the maximum of the magnetic resonance signal A,

and

C is the post-processed magnetic resonance signal,

For claims 18-20, none of the prior art teach singularly or in combination more than two magnetic resonance signals are obtained from the raw magnetic resonance data by filtering, and are subjected to weighted combination to form a post-processed magnetic resonance signal, a magnetic resonance tomography unit matched to a method for post-processing raw magnetic resonance data as claimed in claim 1, a magnetic resonance spectroscopy unit matched to a method for post-processing raw magnetic resonance data as claimed in claim 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien X. Vo whose telephone number is (571) 272-2282. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

Art Unit: 2863

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hien Vo
05/11/05



MICHAEL NGHIEM
PRIMARY EXAMINER